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ABSTRACT

Reading research can answer the question of how to teach vocabulary to increase reading comprehension. Literature reviews show that almost any type of vocabulary instruction can produce significant gains in word knowledge, but that since more than this superficial knowledge is necessary to make a difference in reading comprehension, much vocabulary instruction fails. The definitional approach teaches labels rather than concepts, while the context approach is ineffective when taught as a discrete skill. Although combining these two teaching methods is effective, several new instructional techniques are still more "powerful." The characteristics of powerful techniques are integration, or establishment of connections or relationships between instructed words and other words and concepts; repetition, or repeated encounters with new words; and using word meanings to make inferences. Producing the largest vocabulary gains with limited instruction time also requires efficient as well as powerful instruction. Research suggests that most people learn vocabulary incidentally, from context, hence the following paradox: the most powerful method of vocabulary instruction is quite inefficient and the least powerful method is quite efficient. This leads to five recommendations for vocabulary instruction: (1) intensive instruction should be used for a relatively small number of carefully selected words, (2) powerful vocabulary instruction can be applied with intermediate levels of intensity to a large number of words, (3) the classroom atmosphere should be saturated with new and interesting words, (4) students should increase the time actually spent reading, and (5) students should be given instruction that will help them become more effective independent word learners. A four-page list of references is included. (HTH)

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Vocabulary Instruction: Implications of the New Research

William E. Nagy

(Draft/Outline)

I: INTRODUCTION

The title that was suggested to me for this talk was "Vocabulary Instruction: Implications of the New Research."

A. focus: reading vocabulary/reading comprehension

Let me say at the outset that I want to focus on teaching reading vocabulary, with the aim of improving reading comprehension. There are certainly other good reasons to teach vocabulary, for example, improving writing--but I want to focus on what research has to say about how to teach vocabulary in a way that will help students better understand what they read.

B. outline:

I first want to address a question which I think recent research allows us to answer with some degree of confidence: How do you teach vocabulary if you want to be sure to increase reading comprehension?

After that, we have to address some areas which are just as important, but for which research still leaves major questions unanswered.

II: DEPTH OF WORD KNOWLEDGE/POWERFUL INSTRUCTION

A. LEVELS OF WORD KNOWLEDGE

Word knowledge is not an all-or-nothing thing. One can know a word to varying degrees.

There are different aspects of word knowledge. Ability to

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define a word is distinct from the ability to use it.

Surveys of research on vocabulary instruction--Mezynski, 1983; Pearson & Gallagher, 1983; Stahl, in review?--show a consistent pattern with important implications: Almost any type of vocabulary instruction can produce significant gains in word knowledge, if you use a measure of word knowledge like multiple-choice test of word meanings. But it is much harder to produce measurable gains in reading comprehension. In fact, in the first two surveys mentioned, studies that produced measurable gains in reading comprehension were the exception rather than the rule.

In general, then, it takes more than superficial knowledge of a word to make a difference in reading comprehension.

B. TYPES OF INSTRUCTION THAT FAIL

Unfortunately, much vocabulary instruction, as it is commonly practiced, produces only a superficial level of word knowledge.

1. THE DEFINITIONAL APPROACH

Traditionally, much vocabulary instruction involves some variety of a definitional approach, with students learning definitions or synonyms for instructed words.

There are obvioulsy better and worse versions of this approach, and I do not mean to say that it is totally without value. But by itself, a definitional approach to vocabulary produces only a very superficial level of word knowledge, and hence does not reliably improve reading comprehension.

What is missing in the definitional approach should become clearer as I go on. At this point let me simply say that the

goal of vocabulary instruction is to teach concepts and not just new labels. Definitions can IDENTIFY concepts, but they are inadequate to TEACH new concepts.

2. CONTEXT (AS CURRENTLY PRACTICED)

Another common approach to teaching vocabulary is the use of context. A teacher might write a sentence or two on the board containing the word to be learned, and ask students to figure out what the word means.

Some programs have gone so far as to leave out any explicit vocabulary instruction, since the "natural" way to learn words is from context while reading.

I would not deny that learning from context is an important avenue of vocabulary growth--on the contrary, it is extremely important, as I will argue at more length later. But context, used as an instructional method by itself, is very ineffective compared to other forms of vocabulary instruction.

C. TYPES OF INSTRUCTION THAT SUCCEED

It has been shown that instructional methods which combine definitional and contextual approaches are more effective than either one used in isolation. Mixed methods do, on the average, increase reading comprehension.

But a variety of new instructional techniques have been tried out recently which are more powerful than even a mix of contextual and definitional approaches.

Rather than describe any of these techniques in great detail, I want to extract what I feel are the essential properties that make such techniques successful.

a. INTEGRATION (RELATIONSHIPS)

The first can be called 'integration'. Powerful vocabulary instruction establishes connections or relationships between the instructed word and other words and concepts--and most important, explicitly ties instructed words in with words and concepts already familiar to the learner.

b. REPETITION (AUTOMATICITY)

The second is repetition. Learning a word is more like learning a skill than like learning a fact. In-depth word knowledge requires repeated encounters with a word.

c. USING WORD MEANINGS to make inferences

The third is using the meaning of instructed words to make inferences. There is a big difference between learning to SAY what a word means, and learning to USE that meaning in comprehension.

Now I'll go into each of these in a little more detail, with some examples of instructional methods.

D. INTEGRATION/RELATIONSHIPS

1. MOTIVATION: SCHEMA THEORY

The first property of powerful vocabulary instruction is that it integrates instructed words with other knowledge--it establishes connections among instructed words, and between instructed words and students' prior knowledge.

This emphasis in instruction is an outgrowth of schema theory. I don't have the time to say much about schema theory; for our purposes, the essense of schema theory lies in two points:

(1) Knowledge is structured: it consists, not of lists of

independent facts, but of sets of relationships.

(2) Our current knowledge determines how new information is interpreted and remembered. Incoming information is processed by relating it to what we already know. To put it simply, "comprehending is building bridges between the new and the known" (Pearson & Johnson, 1978, p. 24).

Instruction that incorporates these principles has proven to be powerful in improving reading comprehension. This goes for both vocabulary instruction in specific, and other aspects of comprehension instruction as well.

2. EXAMPLES OF SUCH INSTRUCTION: semantic mapping

How can these principles be implemented in vocabulary instruction? There are numerous ways. One of them has been labeled "semantic mapping."

In the classroom, it goes something like this:

First, the teacher choses a topic or word as a central them--ideally one central to a story about to be read. Example topic: "stores." Teacher writes word on the blackboard.

Second, the teacher asks the class to think of as many words as possible that are related in some way to the target word, and write them down themselves in categories.

Third, the teacher uses suggestions from the class to construct a class map on the board, with words grouped into categories.

For example: people in stories, how much things cost, things you buy in stores, and so on.

The teacher can then introduce and discuss words targeted for instruction in their respective categories.

This procedure serves a number of purposes. First of all, it activates appropriate background knowledge--it gets students thinking about their own experiences and knowledge that relate to a subject. This may seem unnecessary, but it has been found that students often do not spontaneously bring the knowledge they possess to bear when reading.

Second, it enables the teacher to assess what the students already know. Then the teacher can discuss new concepts and words in terms of concepts and words that are already familiar to the class.

Third, it explicitly ties the new words into familiar information, as well as showing relationships between the new words. The classroom discussion that goes along with making a semantic map can include questions of the form "How is X related to Y?"

Fourth, it provides students with a visual representation of some of the relationships among concepts they are dealing with.

3. SEMANTIC FEATURES

Semantic feature analysis is a classroom vocabulary activity which highlights similarities and differences in the meanings of related words.

You start with a group of related words--for example, cabin, shed, barn, tent, mansion. Then you try to find features that distinguish them--small, large, permanent, temporary, for people, for animals, for storage, and so on.

This information can be represented as a matrix, with the words labelling rows and features labelling columns, and plusses

and minuses indicating whether or not a given feature applies to a word. In the course of discussion, additional words and features will be added. The method is described in detail in Johnson and Pearson's (1984) Teaching Reading Vocabulary (Second Edition).

Like semantic mapping, semantic feature analysis provides a visual representation of relationships among words. Semantic feature analysis, however, focuses more on differences in meaning.

3. OTHER INSTRUCTIONAL TECHNIQUES

Semantic mapping and semantic feature analysis are examples of instructional techniques that focus on relationships among words and integrate instructed words with students' prior knowledge. However, there are numerous other ways the same goals can be achieved; one certainly doesn't need a classroom activity as elaborate as semantic feature analysis or semantic mapping to help children in the class relate new words to their own experience.

For example, simple questions can be used to draw out relationships between instructed words:

Could an accomplice be a novice?
Could a philanthropist be a miser?

4. SUMMARY OF SCHEMA-BASED APPROACHES

The exact method used is not the point: What is important is that new words be taught as concepts that are related to other concepts, and especially, that they be related to information already familiar to the learners.

E. REPETITION / AUTOMATICITY

1. MOTIVATION: THE BOTTLENECK HYPOTHESIS

The importance of repetition in word knowledge has to do with what has been called the "verbal efficiency hypothesis" (Perfetti & Lesgold, 1979), or the "bottleneck hypothesis." According to this hypothesis, a reader has only limited processing capacity available for tasks that require conscious attention. If the reader can decode well, and knows all the words in the text very well, then identifying the words of the text can proceed more or less automatically, and most of the reader's attention can be given to comprehension.

However, according to this hypothesis, words have to be known rather well for the reading process to run along smoothly in this fashion. Simply knowing the definition of the word does not guarantee that the word's meaning can be effortlessly and automatically accessed during reading.

The claim is that to improve reading comprehension, vocabulary instruction must ensure not only that the reader knows what the word means, but that the reader has had sufficient practice with the word to make its meaning quickly and easily accessible during reading.

And there is in fact plenty of evidence that repetition in vocabulary instruction is important for achieving a level of word knowledge that can facilitate reading comprehension (cf. Stahl, in review, and McKeown, Beck, Omanson, & Pople, 1985).

A series of studies by Dr. Beck and her colleagues indicates that less then ten instructional encounters with a word will not produce measurable gains in reading comprehension.

And of course the quality of the repetition is important.

McKeown, Beck, Omanson and Pople (1985) found that 12 instructional encounters with a word in their intensive vocabulary instruction increased reading comprehension, but an equal degree of repetition with a definitional approach did not.

(Stahl's (in review) meta-analysis drew similar conclusions. Drill and practice--reptition of the same information--was not as effective in improving comprehension as were instructional strategies that aimed for breadth of knowledge, that is, multiple exposures to the instructed word in different contexts.)

F. USING WORD MEANINGS TO MAKE INFERENCES

A third property of powerful vocabulary instruction is that it involves using the meanings of words to make inferences.

1. MOTIVATION: SIMILARITY BETWEEN INSTRUCTION AND THE ACTUAL SKILLS TO BE ACQUIRED
(YOU GET WHAT YOU TRAIN FOR)

The motivation for this is, to put it simply, the fact that you get what you train for.

There is a big difference between being able to say what a word means, and being able to use it. How many of you could give me a good, non-circular definition of "if"?

If you want your students to be able to parrot definitions, drilling them on definitions is a great teaching method. If you want them to deal with words in isolation, you can train them on isolated words. If you want them to deal with the words in context, you should include context in your instruction (cf. McKeown et al., 1985 and Stahl, in review). If you want them to USE the meanings of the word to construct a coherent understanding of the meaning of a text, you'd better make sure

that your instruction includes some activities in which the students use the meanings of the words to make inferences.

3. EXAMPLES OF EFFECTIVE INSTRUCTION

Here are some examples of instructional techniques from the intensive instruction implemented by Dr. Beck and her colleagues in which the students must use their new knowledge of the instructed words to make inferences and draw conclusions:

(i) a quick semantic word-association activity: the teacher says a known word that is associated with one of that day's new words; students are supposed to guess which one. For example: The day's words are virtuoso, accomplice, philanthropist, and novice, and the teacher says crook. Students are asked to justify their answers.

(ii) affective association activity: teacher reads words and students are supposed to say "Yay" or "Boo"--dissenting reponses are accepted if they are justified adequately.

(iii) Students complete sentence fragments containing target words--this was done as a whole class activity, and students write down agreed-upon completion.

(iv) Worksheet activity: a multiple choice test in which student has to determine for example, which of several actions might be most appropriate for an accomplice or a philanthropist. Choices are not definitions, but rather, involve inferences. some are done individually, and class discusses items afterwords.

(v)Creative writing, or skits, involving target words.

(vi) Questions probing relationships among target words: Could an accmplice be a novice? Can a philanthropist be a miser?

G. SUMMARY OF PROPERTIES OF POWERFUL VOCABULARY INSTRUCTION

To sum up what I have covered so far: There are three properties that are characteristic of vocabulary instruction that improves reading comprehension:

(1) Integration: meanings of instructed words are related to each other, and more importantly, to students' prior knowledge

(2) Repetition:

(3) Using word meanings to make inferences

The most powerful vocabulary instruction will incorporate all three.

III: EFFICIENCY / NUMBERS

A. TRANSITION:

Fasten your conceptual seatbelts: I'm about to shift gears.

Up to now, I've been talking about attributes of powerful vocabulary instruction: How do you teach words if you want to be sure that your students learn them, and learn them thoroughly.

Now I want to address a different question: What constitutes EFFICIENT vocabulary instruction. By "efficient" instruction I mean instruction that can produce the largest, long-term gains in vocabulary knowledge, given limited instructional time.

B. THE INEFFICIENCY OF INTENSIVE VOCABULARY INSTRUCTION

The issue of efficiency comes up because powerful instruction can bevery expensive. The intensive vocabulary instruction implemented by Dr. Beck and her colleagues, for example, could probably beat any other existing method, as far as improving reading comprehension is concerned--but it takes twenty minutes of instruction per word.

(Eight minutes per word of the same instruction doesn't produce reliable gains in reading comprehension. In other words, it takes considerable time to arrive at a level of word knowledge sufficient to measurably improve reading comprehension.)

C. THE QUESTION OF ALTERNATIVE ROUTES TO VOCABULARY KNOWLEDGE

You might say that 20 minutes per word is a high price to pay, but vocabulary knowledge is so important that even that price isn't too high.

I would agree, if there were no other way to get high-quality vocabulary knowledge. But the fact is, with the exception of the subjects in a few studies, probably no one in the country--in the world, for that matter--has been exposed to vocbaulary instruction of such extreme intensity, and certainly no program at such a high level of intensity has ever been implemented over a prolonged period of time. And yet countless students have developed large and effective reading vocabularies.

How did they do it? Could there be other avenues of word learning which, even if not as powerful, are just as effective in the long run?

I want to argue that most people acquire most of their vocabulary knowledge incidentally, from context.

C. LEARNING FROM CONTEXT

1. THE "DEFAULT" ARGUMENT

The most common argument for learning from context has been labeled the "default argument" (Jenkins & Dixon, 1983). The short version is "where else could they learn all those words?"

Let me expand the argument just a little.

According to our estimates, the average child learns about 3,000 words a year between grades 3 and 12; the average high school senior has a vocabulary somewhere around 40,000 words (Nagy & Anderson, 1985; Nagy & Herman, in press). The figures for many above-average children could easily be double this. Even if these figures are off by a factor of two, one conclusion is undeniable: The greatest portion of children's vocabulary growth occurs apart from any instruction specifically devoted to vocabulary.

Where do children learn all those words, then? Obviously from a number of sources--from the speech of parents and peers, from classroom lectures and discussion, from television--and, of course, reading. Our belief is that after third grade, reading may be the single largest source of vocabulary growth. This must be especially true for those children who are learning a thousand or so words per year above and beyond what their average classmates are learning.

2. EVIDENCE FOR LEARNING FROM CONTEXT

But didn't I say earlier th[illegible]rning from context was ineffective? How can the least [illegible]ive method be the largest single source of vocabulary growth?

I believe that the answer lies in sheer volume.

In a recent study, (Nagy, Herman, & Anderson, in review) we measured incidental learning from context by students in 3rd, 5th, & 7th grades. We found that reading grade-level texts under fairly natural conditions, students had about a one-in-twenty chance of learning the meaning of any particular word from context.

At first glance, this only confirms that learning from context is an ineffective method. And as far as short term, instructional strategies are concerned, this is true.

However, the short term is not the whole picture. We estimate that the average 5th grader spends about 25 minutes a day reading, when reading both in and out of school are taken into account. Given this amount of reading, we estimate that a student will encounter between 16,000 and 24,000 new words a year. If one in twenty of these is learned from context, this would amount to 800-1200 words per year, or better than a third of that child's annual vocabulary growth.

If teachers could add another 25 minutes per day to a child's reading time, an additional thousand words could be learned in a year. Our results also suggest that if high-quality texts appropriate for the child were chosen, this rate of learning could be substantially increased.

Let me recap what I have just said about learning from context, and about promoting large-scale vocabulary growth:

No program of vocabulary instruction currently in wide use can account for more than a small fraction of the words that children are actually learning.

Intensive vocabulary instruction of the sort that guarantees in-depth word knowledge cannot possible cover more than a few hundred words a year.

A moderate amount of regular reading can produce large amounts of vocabulary growth, in addition to all the other benefits of practice in reading.

IV: RESOLVING THE PARADOXES

A. TRANSITION

Now, I don't think I have been contradicting myself. But I hope that by now you do have at least some sense of paradox. Up to now, I have said that the least powerful method of vocabulary instruction is actually quite efficient, whereas the MOST powerful method is extremely INeffecient.

Is there any coherence to this picture? And what conclusions can we draw about vocabulary instruction?

Some people have tried to make sense of the picture by saying that learning from context can only lead to a very superficial level of word knowledge. Context gives you superficial knowledge, instruction gives you in-depth knowledge. There is some truth in this--one or two encounters with a word in context can only give you very shallow knowledge of a word.

But this doesn't account for the fact that nobody--I think I can say this without fear of exaggeration--nobody has been systematically exposed to a long-term program of vocabulary instruction intense enough to produce the kind of word knowledge that is necessary for improving reading comprehension. Most of the vocabulary instruction that goes on in the world is the kind that DOESN'T improve reading comprehension. And yet educated people the world over have developed effective reading vocabularies.

How does it happen? Let's go back to the three properties of powerful vocabulary instruction.

I claim that these are not just properties of powerful instruction, they are necessary conditions for in-depth word

learning. However, they are not found only in instruction. On the contrary, reading itself includes all three of these necessary components of word learning.

Let me just list them again, and I think it should be clear how well reading provides all three:

(1) integration: the word being learned must be related to other words, and especially to the learner's prior knowledge;

(2) repetition: the word to be learned must be encountered repeatedly; and

(3) using word meanings to make inferences.

These are three conditions necessary for in-depth word knowledge. In practice, people's experience of these is distributed in various ways between actual vocabulary instruction and incidental encounters with words in reading, and elsewhere as well.

This distribution of labor is absolutely necessary. Only a small fraction of the words that children should learn could possibly be covered by instruction intensive enough to guarantee the desired depth of word knowledge.

The question to be asked is, what is the OPTIMAL distribution of labor? How can we make the best use of limited instructional time to achieve the greatest gains in quality and quantity of vocabulary knowledge?

C. RECOMMENDATIONS FOR INSTRUCTION

This is a point where I don't think research up to now has any clear answers. But I do think we can take what we do know, and aim for a sensible eclecticism. A comprehensive approach to vocabulary instruction should work for vocabulary growth on a

number of fronts:

1) Intensive instruction should be used, for a relatively small number of carefully selected words.

2) The principles of powerful vocabulary instruction can be applied with intermediate levels of intensity to a large number of words, with techniques and methods being adapted and mixed in different ways.

(I hope it is clear that powerful instruction is a matter of degree, and not an all-or-nothing choice. Much of current classroom practice could be improved greatly by incorporating various insights from recent research, without going all the way to the most intensive instruction possible.

There is much room for improvement in much current instructional practice, if for no other reason than the fact that much of the recent research on vocabulary instruction has not had time to work its way into teachers' manuals.)

3) The classroom atmosphere should be saturated with new and interesting words. Teachers should USE rich and varied vocabulary, and slip in explanations and definitions whenever possible.

4) There should be an increase in time students spend actually reading.

5) Students should be given instruction that will help them become more effective independent word learners.

D. ELABORATIONS ON RECOMMENDATIONS

I would like to elaborate briefly on some of these recommendations.

1. CHOOSING WORDS CAREFULLY FOR INTENSIVE INSTRUCTION

(optional section: may be deleted if there isn't enough time)

First, as to the use of really intensive instruction: Since such instruction is time-consuming, and can only be applied to a small number of words, the most important thing in applying it is to make the right choice as to WHICH words should be instructed in this way.

Dr. Beck and her colleagues have suggested several criteria, most importantly:

(i) Choose words from the appropriate frequency range--frequent enough to make them worth learning, but not so frequent that they are already known.

(ii) Choose words that are conceptually central to the story to be read.

I would add anotther criterion, which we can call conceptual difficulty, in the following sense: A word is conceptually difficult if learning it requires the learner to master not only a new word, but a new system of concepts or set of distinctions.

Let me illustrate with some examples: The word superfluous sounds like a "hard word"--it's long, and doesn't occur all that often. But the concept behind it should be readily available to even young students; its meaning can easily be explained in terms of words, concepts, and experiences familiar to almost anybody.

The word "capillary," on the other hand, is likely to pose a different sort of problem for the learner. The person who does not know this word is also likely to be unfamiliar with much of the structure and function of the circulatory system. Learning

such a word involves more than just learning a new label.

This kind of word is the sort of word for which definitions are of little help; there is simply not enough information in a definition for someone who does not already understand that domain of knowledge fairly well.

A study we conducted recently (Nagy, Anderson & Herman, 1985) also shows that such words are especially resistant to learning from context as well. Such words are therefore likely candidates for intensive instruction.

2. INCREASING INDEPENDENT WORD LEARNING

Finally, I want to stress the importance of increasing independent word learning.

Even with the best possible instructional techniques, most of a student's vocabulary growth will continue to talk place outside of vocabulary instruction. (Even for those words that are covered in instruction, much of the practice necessary for in-depth word knowledge will have to take place during reading.) Therefore, a comprehensive approach to vocabulary will have to include instruction aimed at helping students become better indepedent word learners.

This is an area rife with sensible suggestions, but largely devoid of hard experimental evidence. I'm going to offer what I think is the most profitable direction in which to look for improvement.

I'm basing my suggestion on the fact that most of the recent research on instruction in reading comprehension has turned out to be effective when applied to vocabulary instruction in particular--e.g, the importance of relating new information to

background knowledge, training in making inferences, seeing relationships among concepts.

There's a particular aspect of the recent developments in reading comprehension instruction that has for the large part not been applied to vocabulary instruction.

I have in mind teaching of strategies, using explicit modelling by teachers, with gradual transfer of control to the students.

In a recent summary of research on reading comprehension instruction, David Pearson (1985) says:

"Teaching the so-called comprehension skills in a model that begins with a fairly heavy reliance on the teacher and build towards student independence, and that includes deomonstrations of how to perform the skill is superior to a model that emphasize practice, assessment, and more practice."

There's a lot packed into that quote. The basic points are these:

Comprehension skills and strategies can be taught.

The teacher starts by making the skills and strategies as explicit as possible.

The instruction procedes with "gradual transfer of responsibility" to the students.

I can't go into this in more detail now; I can only refer you to reviews such as Pearson (1985) and Pearson and Gallagher (1983). Research in reading comprehension has shown that teaching strategies in this way can be very effective--especially, although not exclusively, for lower-ability students

who aren't as likely as more able students to pick up such strategies on their own.

My point is that there have been almost no attempts to apply these insights to teaching the kind of strategies that could lead to improved independent word learning.

I'm thinking in particular about the use of context clues, and word parts. I'm sure there is almost universal consent among researchers and teachers alike that context clues and word parts are, at least in principle, important part of vocabulary instruction.

But even with very little information about current classroom practice (cf. Blachowitz, 1984, for some information on the use of context in classrooms), I can say with some confidence that current classroom practice falls far short of what could be attained in terms of teaching context clues and word parts as skills and strategies to be applied during reading.

At this point, I can't give you any details of how this would look in classroom practice. But if you read some of the reviews of recent developments in teaching comprehension skills and strategies, I think numerous examples will spring to mind.

For now, I can only point this out as what I see as a most promising direction for research in the near future, and one that addresses a very real need. Children encounter new words by the thousands and tens of thousands: They not only have to be taught words, but how to deal with words.

VI: CONCLUSION/SUMMARY

(THIS IS AN OPTIONAL SECTION THAT WILL ALMOST CERTAINLY HAVE TO BE DELETED)

To conclude:

A. Improving reading comprehension requires producing in-depth word knowledge. This requires:

1) integration--establishing relationships among instructed words, and especially between instructed words and familiar words, concepts, and experiences

2) repetition--instructed words have to be encountered frequently

3) practice in USING the meanings of instructed words to make inferences

Traditional vocabulary instruction has not provided these components, at least not in sufficient measure. Vocabulary instruction can be made much more powerful by using approaches that incorporate these attributes. However, vocabulary instruction alone cannot provide all the integration, repetition, and practice that is necessary. To increase large-scale vocabulary growth, we have to increase the amount of time that students spend reading.

Finally, a comprehensive approach to vocabulary instruction must include the teaching of strategies and skills that make students become better independent word learners.

While there is little experimental evidence to help decide what the most effective ways to proceed here are, research in reading comprehension instruction gives us an indication of what is likely to be very helpful: Instruction in <u>strategies</u>, in which the teacher explicitly models the thought processes that a skilled word-learner uses when encountering unfamiliar words in

context while reading.

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